STATE OF NEW HAMPSHIRE
INTER-DEPARTMENT COMMUNICATION

DATE: July 10th, 2019

FROM: Andrew O'Sullivan
Wetlands Program Manager

AT (OFFICE): Department of Transportation

SUBJECT Dredge & Fill Application
Landaff, STM77109

Bureau of Environment

TO Collis Adams, Wetlands Bureau Administrator
Craig Rennie, Inland Wetland Supervisor
New Hampshire Wetlands Bureau
29 Hazen Drive, P.O. Box 95
Concord, NH 03302-0095

Forwarded herewith is the application package prepared by NH DOT Bureau of Bridge Maintenance for the subject major impact project. This project is classified as major per Env-Wt 303.02(p). The project is located on NH Route 116 in the Town of Landaff, NH. The proposed work consists of installing a concrete wingwall and riprap to stabilize an eroding stream bank along Davis Brook.

This project was not reviewed at the Natural Resource Agency Coordination Meeting. The damage was caused during the severe storms in July of 2017. The work was performed under the emergency authorization issued by NHDES for the July 2017 storms that were declared as a state emergency. A copy of this application and plans can be accessed on the Departments website via the following link:
http://www.nh.gov/dot/org/projectdevelopment/environment/units/program-management/wetland-applications.htm

Mitigation is not required. See mitigation narrative included within.

The lead people to contact for this project are Steve Johnson, Administrator, Bureau of Bridge Maintenance (271-3668 or steve.johnson@dot.nh.gov) or Andrew O'Sullivan, Wetlands Program Manager, Bureau of Environment (271-3226 or Andrew.O'Sullivan@dot.nh.gov).

A payment voucher has been processed for this application (Voucher #575227) in the amount of $356.20.

If and when this application meets with the approval of the Bureau, please send the permit directly to Andrew O'Sullivan, Wetlands Program Manager, Bureau of Environment.

AMO:sel
Enclosures
cc:
BOE Original
Town of Landaff (4 copies via certified mail)
David Trubey, NH Division of Historic Resources (Cultural Review Within)
Carol Henderson, NH Fish & Game (via electronic notification)
Maria Tur, US Fish & Wildlife (via electronic notification)
Mark Kern, US Environmental Protection Agency (via electronic notification)
Michael Hicks, US Army Corp of Engineers (via electronic notification)
Kevin Nyhan, BOE (via electronic notification)
S:\Environment\PROJECTS\LANDAFF\STM77109\Wetlands\WETAPP - Bridge Maintenance.doc

NHDES-W-06-012

WETLANDS PERMIT APPLICATION

Water Division/ Wetlands Bureau
Land Resources Management

Check the status of your application: www.des.nh.gov/onestop

RSA/Rule: RSA 482-A/ Env-Wt 100-900

Administrative Use Only	Administrative Use Only	Administrative Use Only	File No. Check No. Amount: Initials:

1. REVIEW TIME: Indicate your Review Time below. To determine review time, refer to Guidance Document A for instructions.

☒ Standard Review (Minimum, Minor or Major Impact) ☐ Expedited Review (Minimum Impact only)

2. MITIGATION REQUIREMENT:

If mitigation is required a Mitigation-Pre Application meeting must occur prior to submitting this Wetlands Permit Application. To determine if Mitigation is Required, please refer to the Determine if Mitigation is Required Frequently Asked Question.

Mitigation Pre-Application Meeting Date: Month: __ Day: __ Year: ____

☒ N/A - Mitigation is not required

3. PROJECT LOCATION:

Separate wetland permit applications must be submitted for each municipality that wetland impacts occur within.

ADDRESS: **NH 116**			TOWN/CITY: **Landaff**
TAX MAP:	BLOCK:	LOT:	UNIT:

USGS TOPO MAP WATERBODY NAME: **Davis Brook** ☐ NA STREAM WATERSHED SIZE: **1.83 sq. mi.** ☐ NA

LOCATION COORDINATES (If known): **44`05'52.28" 71`51'26.59"** ☒ Latitude/Longitude ☐

4. PROJECT DESCRIPTION:

Provide a brief description of the project outlining the scope of work. Attach additional sheets as needed to provide a detailed explanation of your project. DO NOT reply "See Attached" in the space provided below.

This project addressed the damage to the northwest abutment done during the July 2017 storm. The bank had washed out and was threatening to destroy the roadway. Bureau of Bridge Maintenance installed a concrete wall and erosion stone to protect the bank and structure.

5. SHORELINE FRONTAGE:

☒ NA This does not have shoreline frontage. SHORELINE FRONTAGE:

Shoreline frontage is calculated by determining the average of the distances of the actual natural navigable shoreline frontage and a straight line drawn between the property lines, both of which are measured at the normal high water line.

6. RELATED NHDES LAND RESOURCES MANAGEMENT PERMIT APPLICATIONS ASSOCIATED WITH THIS PROJECT:

Please indicate if any of the following permit applications are required and, if required, the status of the application.

To determine if other Land Resources Management Permits are required, refer to the Land Resources Management Web Page.

Permit Type	Permit Required	File Number	Permit Application Status
Alteration of Terrain Permit Per RSA 485-A:17	☐ YES ☒ NO	____	☐ APPROVED ☐ PENDING ☐ DENIED
Individual Sewerage Disposal per RSA 485-A:2	☐ YES ☒ NO	____	☐ APPROVED ☐ PENDING ☐ DENIED
Subdivision Approval Per RSA 485-A	☐ YES ☒ NO	____	☐ APPROVED ☐ PENDING ☐ DENIED
Shoreland Permit Per RSA 483-B	☐ YES ☒ NO	____	☐ APPROVED ☐ PENDING ☐ DENIED

7. NATURAL HERITAGE BUREAU & DESIGNATED RIVERS:

See the Instructions & Required Attachments document for instructions to complete a & b below.

a. Natural Heritage Bureau File ID: NHB **19**____- **1438**____.

b. ☐ Designated River the project is in ¼ miles of: _____; and date a copy of the application was sent to the Local River Management Advisory Committee: Month: __ Day: __ Year: ____

☒ N/A

8. APPLICANT INFORMATION (Desired permit holder)

LAST NAME, FIRST NAME, M.I.: **NH Dept. of Transportation**			
TRUST / COMPANY NAME: **NHDOT-Bridge Maintenance**	MAILING ADDRESS: **PO Box 483**		
TOWN/CITY: **Concord**		STATE: **NH**	ZIP CODE: **03302**
EMAIL or FAX: **steve.johnson@dot.nh.gov**	PHONE: **271-3226**		
ELECTRONIC COMMUNICATION: By initialing here: SWJ, I hereby authorize NHDES to communicate all matters relative to this application electronically			

9. PROPERTY OWNER INFORMATION (If different than applicant)

LAST NAME, FIRST NAME, M.I.: **NH Dept. of Transportation**			
TRUST / COMPANY NAME: **NH Dept. of Transportation**	MAILING ADDRESS: **PO Box483**		
TOWN/CITY: **Concord**		STATE: **NH**	ZIP CODE: **03302**
EMAIL or FAX: **Andrew.O'Sullivan@dot.nh.gov**	PHONE: **271-3226**		
ELECTRONIC COMMUNICATION: By initialing here _____, I hereby authorize NHDES to communicate all matters relative to this application electronically			

10. AUTHORIZED AGENT INFORMATION

LAST NAME, FIRST NAME, M.I.:	COMPANY NAME:		
MAILING ADDRESS:			
TOWN/CITY:		STATE:	ZIP CODE:
EMAIL or FAX:	PHONE:		
ELECTRONIC COMMUNICATION: By initialing here _____, I hereby authorize NHDES to communicate all matters relative to this application electronically			

11. PROPERTY OWNER SIGNATURE:

See the Instructions & Required Attachments document for clarification of the below statements

By signing the application, I am certifying that:

1. I authorize the applicant and/or agent indicated on this form to act in my behalf in the processing of this application, and to furnish upon request, supplemental information in support of this permit application.
2. I have reviewed and submitted information & attachments outlined in the Instructions and Required Attachment document.
3. All abutters have been identified in accordance with RSA 482-A:3, I and Env-Wt 100-900.
4. I have read and provided the required information outlined in Env-Wt 302.04 for the applicable project type.
5. I have read and understand Env-Wt 302.03 and have chosen the least impacting alternative.
6. Any structure that I am proposing to repair/replace was either previously permitted by the Wetlands Bureau or would be considered grandfathered per Env-Wt 101.47.
7. I have submitted a Request for Project Review (RPR) Form (www.nh.gov/nhdhr/review) to the NH State Historic Preservation Officer (SHPO) at the NH Division of Historical Resources to identify the presence of historical/ archeological resources while coordinating with the lead federal agency for NHPA 106 compliance.
8. I authorize NHDES and the municipal conservation commission to inspect the site of the proposed project.
9. I have reviewed the information being submitted and that to the best of my knowledge the information is true and accurate.
10. I understand that the willful submission of falsified or misrepresented information to the New Hampshire Department of Environmental Services is a criminal act, which may result in legal action.
11. I am aware that the work I am proposing may require additional state, local or federal permits which I am responsible for obtaining.
12. The mailing addresses I have provided are up to date and appropriate for receipt of NHDES correspondence. NHDES will not forward returned mail.

Property Owner Signature	Steve W. Johnson Print name legibly	7/31/2019 Date

MUNICIPAL SIGNATURES

12. CONSERVATION COMMISSION SIGNATURE

The signature below certifies that the municipal conservation commission has reviewed this application, and:

1. Waives its right to intervene per RSA 482-A:11;
2. Believes that the application and submitted plans accurately represent the proposed project; and
3. Has no objection to permitting the proposed work.

	Print name **legibly**	Date
⇨		

DIRECTIONS FOR CONSERVATION COMMISSION

1. Expedited review ONLY requires that the conservation commission's signature is obtained in the space above.
2. Expedited review requires the Conservation Commission signature be obtained **prior** to the submittal of the original application to the Town/City Clerk for signature.
3. The Conservation Commission may refuse to sign. If the Conservation Commission does not sign this statement for any reason, the application is not eligible for expedited review and the application will reviewed in the standard review time frame.

13. TOWN / CITY CLERK SIGNATURE

As required by Chapter 482-A:3 (amended 2014), I hereby certify that the applicant has filed four application forms, four detailed plans, and four USGS location maps with the town/city indicated below.

	Print name legibly	Town/City	Date
⇨ Town/City Clerk Signature			

DIRECTIONS FOR TOWN/CITY CLERK:

Per RSA 482-A:3,I

1. For applications where "Expedited Review" is checked on page 1, if the Conservation Commission signature is not present, NHDES will accept the permit application, but it will NOT receive the expedited review time.
2. IMMEDIATELY sign the original application form and four copies in the signature space provided above;
3. Return the signed original application form and attachments to the applicant so that the applicant may submit the application form and attachments to NHDES by mail or hand delivery.
4. IMMEDIATELY distribute a copy of the application with one complete set of attachments to each of the following bodies: the municipal Conservation Commission, the local governing body (Board of Selectmen or Town/City Council), and the Planning Board; and
5. Retain one copy of the application form and one complete set of attachments and make them reasonably accessible for public review.

DIRECTIONS FOR APPLICANT:

1. Submit the single, original permit application form bearing the signature of the Town/ City Clerk, additional materials, and the application fee to NHDES by mail or hand delivery.

14. IMPACT AREA:

For each jurisdictional area that will be/has been impacted, provide square feet and, if applicable, linear feet of impact

Permanent: impacts that will remain after the project is complete.

Temporary: impacts not intended to remain (and will be restored to pre-construction conditions) after the project is complete.

JURISDICTIONAL AREA	PERMANENT Sq. Ft. / Lin. Ft.		TEMPORARY Sq. Ft. / Lin. Ft.	
Forested wetland		☐ ATF		☐ ATF
Scrub-shrub wetland		☐ ATF		☐ ATF
Emergent wetland		☐ ATF		☐ ATF
Wet meadow		☐ ATF		☐ ATF
Intermittent stream		☐ ATF		☐ ATF
Perennial Stream / River	/	☐ ATF	488 / 29	☐ ATF
Lake / Pond	/	☐ ATF	/	☐ ATF
Bank - Intermittent stream	/	☐ ATF	/	☐ ATF
Bank - Perennial stream / River	196 / 36	☐ ATF	1097 / 59	☐ ATF
Bank - Lake / Pond	/	☐ ATF	/	☐ ATF
Tidal water	/	☐ ATF	/	☐ ATF
Salt marsh		☐ ATF		☐ ATF
Sand dune		☐ ATF		☐ ATF
Prime wetland		☐ ATF		☐ ATF
Prime wetland buffer		☐ ATF		☐ ATF
Undeveloped Tidal Buffer Zone (TBZ)		☐ ATF		☐ ATF
Previously-developed upland in TBZ		☐ ATF		☐ ATF
Docking - Lake / Pond		☐ ATF		☐ ATF
Docking - River		☐ ATF		☐ ATF
Docking - Tidal Water		☐ ATF		☐ ATF
TOTAL	196 / 36		1585 / 88	

15. APPLICATION FEE: See the Instructions & Required Attachments document for further instruction

☐ Minimum Impact Fee: Flat fee of $ 200

☐ Minor or Major Impact Fee: Calculate using the below table below

Permanent and Temporary (non-docking) **1781** sq. ft. X $0.20 = **$ 356.20**

Temporary (seasonal) docking structure: _____ sq. ft. X $1.00 = $ _____

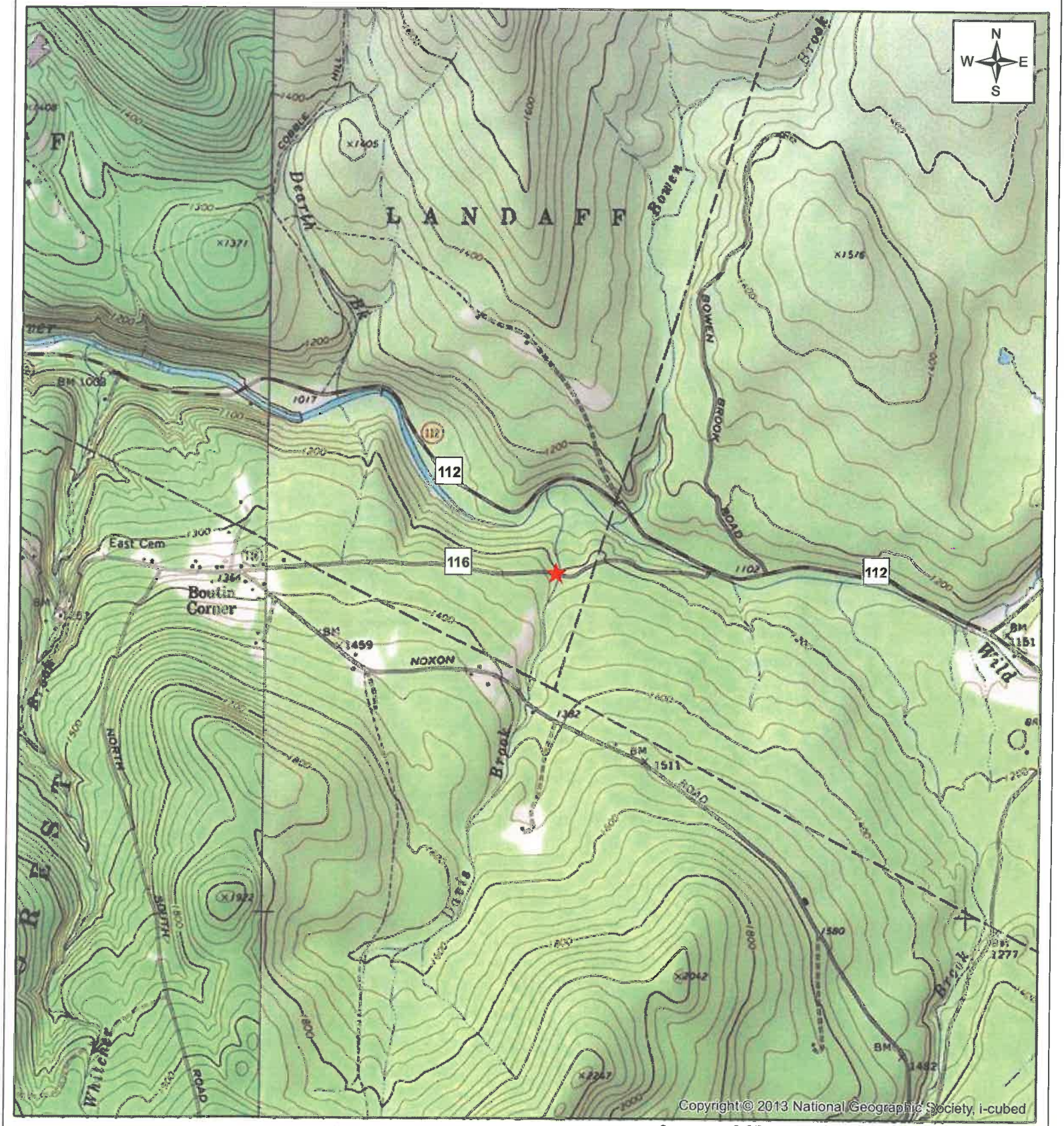
Permanent docking structure: _____ sq. ft. X $2.00 = $ _____

Projects proposing shoreline structures (including docks) add $200 = $ _____

Total = **$ 356.20**

The Application Fee is the above calculated Total or $200, whichever is greater = **$ 356.20**

Landaff Bridge Repair, #STM77109



0 0.25 0.5 0.75 1 Miles

1:24,000

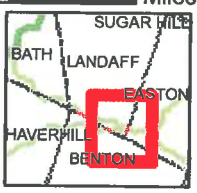
Map depicting bridge 137/031 over Davis Brook in Landaff with USGS topo.

Map created by: Arin Mills on 5/13/2019
Source: S:\Environment\PROJECTS\LANDAFF\STM77109

Legend

★ Bridge 137-031

New Hampshire DOT
Department of Transportation



NEW HAMPSHIRE DEPARTMENT OF Environmental Services

WETLANDS PERMIT APPLICATION – ATTACHMENT A
MINOR AND MAJOR - 20 QUESTIONS

Land Resources Management
Wetlands Bureau

Check the Status of your application: www.des.nh.gov/onestop

RSA/ Rule: RSA 482-A, Env-Wt 100-900

Env-Wt 302.04 Requirements for Application Evaluation - For any major or minor project, the applicant shall demonstrate by plan and example that the following factors have been considered in the project's design in assessing the impact of the proposed project to areas and environments under the department's jurisdiction. Respond with statements demonstrating:

1. The need for the proposed impact.

The project was in response to a washout of the northwest bank during a July 2018 rain event. To protect both the bridge stucture and roadway from further erosion an emergency repair was conducted. Construction of a concrete wing wall extension backfilled with stone both stabilized the slope and prevented further erosion into Davis Brook.

2. That the alternative proposed by the applicant is the one with the least impact to wetlands or surface waters on site.

The alternatives concidered are as follows:

No action. This alternative was ruled out as this would lead to further erosion and bank destabilization, resulting in continued siltation into the Brook and potential to compromise the existing bridge structure.

Install concrete wall, backfilled with rip-rap. This was the prefered alternative as it both protected the bank from further erosion and repaired the existing damage. This was done as an emergency repair as the soil material along the bank would continue to erode with future storm events, potentially causing the existing bridge to become unstable and impede safe passage for vehicles.

3. The type and classification of the wetlands involved.

R2UB12: Riverine, lower perennial, unconsolidated bottom, cobble gravel, sand

Bank

4. The relationship of the proposed wetlands to be impacted relative to nearby wetlands and surface waters.

Davis Brook flows 1/4 mile further downstream and empties into the Wild Ammonoosuc River

5. The rarity of the wetland, surface water, sand dunes, or tidal buffer zone area.

Davis Brook has not been identified as a rare surface water of the state.

6. The surface area of the wetlands that will be impacted.

488 sq. ft. Riverine (temporary)

1,293 sq. ft. bank (196 sq. ft. permanent, 1,097 sq. ft temporary)

7. The impact on plants, fish and wildlife including, but not limited to:
   a. Rare, special concern species;
   b. State and federally listed threatened and endangered species;
   c. Species at the extremities of their ranges;
   d. Migratory fish and wildlife;
   e. Exemplary natural communities identified by the DRED-NHB; and
   f. Vernal pools.

a. Results of the NH Natural Heritage Bureau database search (NHB19-1438) resulted in no expected impacts from the proposed project.

b. Results of the USFWS IPaC search identified Northern long-eared bat (NLEB) on the Projects Official Species List and having potential to be present it the project area. No tree clearing (trees >3" dbh) occurred. No impacts to state listed species anticipated.

c. No species at the extremities of their range are known to occur in the project area.

d. The existing structure which carries Davis Brook is perched ~5 feet at the outlet which is known to inhibit fish passage. Previous review of the site (wetland permit 2010-00123) identified a natural waterfall upstream of the site which would naturally inhibit fish passage. This project did not impact the existing perched structure and therefore will have no further impact on passage of fish or wildlife in the area. A Clean Water Bypass was used for water diversion during construction.

e. No exemplary natural communities are are known to occur in the project area as shown by the NHB database search (NHB19-1438)

f. No vernal pools exist within the project area

8. The impact of the proposed project on public commerce, navigation and recreation.

The project will not impact public commerce or recreation in the area. No recreation facilities have been identified in the area. Davis Brook in non-navigable to boaters. Repair maintained passage of vehicles along NH Route 116.

9. The extent to which a project interferes with the aesthetic interests of the general public. For example, where an applicant proposes the construction of a retaining wall on the bank of a lake, the applicant shall be required to indicate the type of material to be used and the effect of the construction of the wall on the view of other users of the lake.

The project will not significantly interfere with the aesthetic interests of the general public. The concrete retaining wall and backfill material will be more pleasing to the public than a destablized slope. The retaining wall is below the existing bridge and is not readily visible from the traveling public.

10. The extent to which a project interferes with or obstructs public rights of passage or access. For example, where the applicant proposes to construct a dock in a narrow channel, the applicant shall be required to document the extent to which the dock would block or interfere with the passage through this area.

The project will not interfere with the public right of passage or access as no recreation facilities are within the project area.

11. The impact upon abutting owners pursuant to RSA 482-A:11, II. For example, if an applicant is proposing to rip-rap a stream, the applicant shall be required to document the effect of such work on upstream and downstream abutting properties.

The project is expected to have a positive impact on abutting properties. The repair will better serve the abutting properties who travel the road, and the project will not alter the chance of flooding on abutting properties. No easements were obtained as part of the project.

12. The benefit of a project to the health, safety, and well being of the general public.

The project benefits the safety of the general public by stabilizing the slope from present and future erosion. The destablization made the area unsafe to the public and if not fixed could result in further erosion resulting in potential to compromise the existing roadway (Rt116) and bridge.

13. The impact of a proposed project on quantity or quality of surface and ground water. For example, where an applicant proposes to fill wetlands the applicant shall be required to document the impact of the proposed fill on the amount of drainage entering the site versus the amount of drainage exiting the site and the difference in the quality of water entering and exiting the site.

Prior to the washout the water ran off the road, over natural vegetation along the edge of the road and banks of the brook and/or headwalls into the brook. Upon completion of the project, surface water drains over and through the installed rip-rap and into the unlying soil and/or into the brook. The work will not change the quantity or quality of the surface and groundwater within the project limits. All work was done during low-flow conditions. All work was performed on dry exposed ledge, and water diversion was not necessary. The project will improve the surface water quality by stabilizing the slope reducing continued and future siltation into Davis Brook.

14. The potential of a proposed project to cause or increase flooding, erosion, or sedimentation.

Flooding: installation of a concrete wall and rip rap will not have an effect on the structure's ability to pass the 100 year storm event.

Erosion: the repair was in response to ongoing erosion from a storm events. The installation of the concrete wall and rip rap prevent further erosion. No FEMA floodplains are identified in the project area.

Sedimentation: The proposed project will not be a barrier to sediment transport.

15. The extent to which a project that is located in surface waters reflects or redirects current or wave energy which might cause damage or hazards.

Surface waters will not be reflected or redirected as a result of this project. Davis Brook does not have enough surface area for wave energy to be an issue.

16. The cumulative impact that would result if all parties owning or abutting a portion of the affected wetland or wetland complex were also permitted alterations to the wetland proportional to the extent of their property rights. For example, an applicant who owns only a portion of a wetland shall document the applicant's percentage of ownership of that wetland and the percentage of that ownership that would be impacted.

There are no additional transportation related structures nearby the project area and therefore this work will not affect additional landowners along Davis Brook from this work.

17. The impact of the proposed project on the values and functions of the total wetland or wetland complex.

The bank stabilization and installation of the concrete wing wall will prevent further erosion and sedimentation that would impact Davis Brook's natural passage. A function of Davis Brook is to carry water from from a higher elevation to a lower elevation, the project did not interfere with that function. The existing stream crossing structure was not be altered by the project.

18. The impact upon the value of the sites included in the latest published edition of the National Register of Natural Landmarks, or sites eligible for such publication.

This project is not located in or near any Natural Landmarks listed on the National Register.

19. The impact upon the value of areas named in acts of congress or presidential proclamations as national rivers, national wilderness areas, national lakeshores, and such areas as may be established under federal, state, or municipal laws for similar and related purposes such as estuarine and marine sanctuaries.

There are no areas named in an act of Congress or Presidential proclamations as natural rivers, national wilderness area, or national lakeshores that will be impacted as a result of this project.

20. The degree to which a project redirects water from one watershed to another.

The project will not redirect water from one watershed to another.

Additional comments

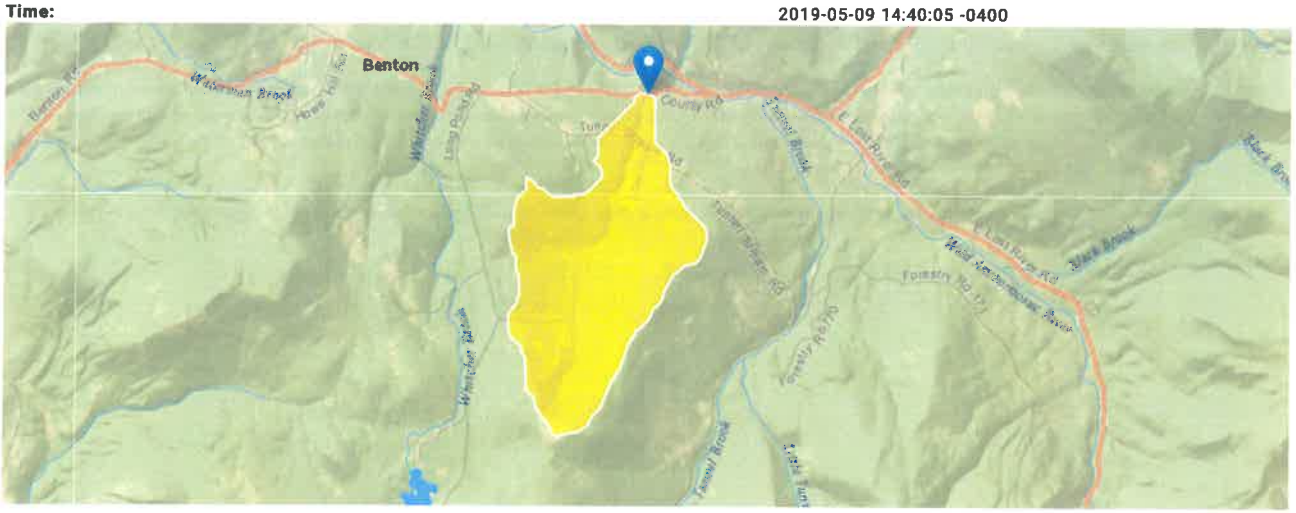
Previous wetland permit (2010-00123) for rebuilding of the invert of a 10.8 ft. X 44 ft. multi plate arch culvert with 6" of reinforced concrete, construct cutoff wall and place stone blanket to prevent erosion impacting 325 sq.ft. of riverine wetlands (292 sq.ft. temporary).

Mitigation Narrative

Per Env-Wt 302.03(c)(2)c mitigation is not proposed as the impacts are due to the protection of existing infrastructure.

StreamStats Report- Landaff STM77109

Region ID:	NH
Workspace ID:	NH20190509183951762000
Clicked Point (Latitude, Longitude):	44.09778, -71.85724
Time:	2019-05-09 14:40:05 -0400



'After the Fact' review for slope destabilization on outflow side of bridge.

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	1.83	square miles
APRAVPRE	Mean April Precipitation	3.161	inches
WETLAND	Percentage of Wetlands	0.1111	percent
CSL10_85	Change in elevation divided by length between points 10 and 85 percent of distance along main channel to basin divide - main channel method not known	396	feet per mi

Peak-Flow Statistics Parameters [Peak Flow Statewide SIR2008 5206]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.83	square miles	0.7	1290
APRAVPRE	Mean April Precipitation	3.161	inches	2.79	6.23
WETLAND	Percent Wetlands	0.1111	percent	0	21.8
CSL10_85	Stream Slope 10 and 85 Method	396	feet per mi	5.43	543

Peak-Flow Statistics Flow Report [Peak Flow Statewide SIR2008 5206]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	PII	PIu	SEp	Equiv. Yrs.
2 Year Peak Flood	88.3	ft^3/s	53.7	145	30.1	3.2
5 Year Peak Flood	146	ft^3/s	87.2	243	31.1	4.7
10 Year Peak Flood	194	ft^3/s	114	331	32.3	6.2
25 Year Peak Flood	261	ft^3/s	148	462	34.3	8
50 Year Peak Flood	316	ft^3/s	173	578	36.4	9
100 Year Peak Flood	382	ft^3/s	202	722	38.6	9.8
500 Year Peak Flood	541	ft^3/s	262	1120	44.1	11

Peak-Flow Statistics Citations

Olson, S.A.,2009, Estimation of flood discharges at selected recurrence intervals for streams in New Hampshire: U.S.Geological Survey Scientific Investigations Report 2008-5206, 57 p. (http://pubs.usgs.gov/sir/2008/5206/)

Application Version: 4.3.0

NH Department of Transportation
Bureau of Bridge Maintenance
Project, #STM77109
Env-Wt 904.09 Alternative Design
TECHNICAL REPORT

Env-Wt 904.09(a) - If the applicant believes that installing the structure specified in the applicable rule is not practicable, the applicant may propose an alternative design in accordance with this section.

Please explain why the structure specified in the applicable rule is not practicable (Env-Wt 101.69 defines practicable as *available and capable of being done after taking into consideration costs, existing technology, and logistics in light of overall project purposes.)*

Davis Brook has a drainage area of 1.83 square miles which qualifies this stream as a Tier 3 crossing. The work was conducted to repair a destabilized slope on the outlet side of the existing structure; no changes to the existing structure carrying Davis Brook were conducted.

The proposed alternative meets the specific design criteria for Tier 2 and Tier 3 crossings to the *maximum extent practicable*, as specified below.

Env-Wt 904.05 Design Criteria for Tier 2 and Tier 3 Stream Crossings – New Tier 2 stream crossings, replacement Tier 2 crossings that do not meet the requirements of Env-Wt 904.07, and new and replacement Tier 3 crossings shall be designed and constructed:

(a) In accordance with the NH Stream Crossing Guidelines.
The proposed improvements have been developed in accordance with the NH Stream Crossing Guidelines. The Department has considered design alternatives based on the general considerations that take the geomorphic conditions of the stream into account as it relates to the structure. The Department has collected data from the field and in the office to aid in the design of the proposed crossing. Using information that was available, the Department has determined that a full bridge replacement would not be practical. As such, the Department has proposed and alternate design that meets the intent of the stream crossing guidelines to the extent possible.

(b) With bed forms and streambed characteristics necessary to cause water depths and velocities within the crossing structure at a variety of flows to be comparable to those found in the natural channel upstream and downstream of the stream crossing.

The bed forms and streambed characteristics will remain the same as prior to completion of the work. No work was done within the structure.

(c) To provide a vegetated bank on both sides of the watercourse to allow for wildlife passage.

The repair installed a concrete wall backfilled with stone under emergency conditions to protect the slope from further erosion and reduce potential for impacts to the existing roadway and bridge structure. Due to the steep slope and unstable soil it was determined vegetation would not resolve the active bank erosion/destabilization, and concrete and stone were required to stabilize the area under emergency conditions. The existing structure did not have banks through the structure.

(d) To preserve the natural alignment and gradient of the stream channel, so as to accommodate natural flow regimes and the functioning of the natural floodplain.

There were no changes to the existing gradient and alignment of the stream channel. All of the work was at the outlet along the river left bank.

(e) To accommodate the 100-year frequency flood, to ensure that (1) there is no increase in flood stages on abutting properties; and (2) flow and sediment transport characteristics will not be affected in a manner which could adversely affect channel stability.

No increase to flood stages on abutting properties or effects on the flow and sediment transport will not be effected in a manner which could adversely affect the channel stability.

(f) To simulate a natural stream channel.

The project did not alter the natural stream channel or structure carrying the stream. The streambed through the structure is a concrete invert and was not changed as a result of this project.

(g) So as not to alter sediment transport competence.

Sediment transport competence will not be altered due to this project.

Env-Wt 904.09(c)(3) – The alternative design must meet the general design criteria specified in Env-Wt 904.01:

Env-Wt 904.01
(a) Not be a barrier to sediment transport;

Sediment transport is accommodated by the existing bridge and will continue to be accommodated at this crossing.

(b) Prevent the restriction of high flows and maintain existing low flows;

High and low flows are accommodated at this crossing and will continue to be accommodated with the adjacent slope stabilization and wall construction.

(c) Not obstruct or otherwise substantially disrupt the movement of aquatic life indigenous to the waterbody beyond the actual duration of construction;

The existing bridge is perched by 6+ feet at the outlet. The bridge has always been perched. Upstream of the crossing there is a natural waterfall that obstructs aquatic organism passage therefore it is likely that aquatic passage is limited through this stretch of the stream. The propose repair did not address this condition.
(d) Not cause an increase in the frequency of flooding or overtopping of banks;

The bank stabilization will not cause an increase in frequency of flooding or overtopping of banks.

(e) Preserve watercourse connectivity where it currently exists;

Watercourse connectivity continues to exist with the installation of the concrete wall and associated backfill.

(f) Restore watercourse connectivity where: (1) Connectivity previously was disrupted as a result of human activity(ies); and (2) Restoration of connectivity will benefit aquatic life upstream or downstream of the crossing, or both;

The watercourse was previous and will continue to be disconnected. There is a 6+ foot perch at the outlet. Upstream of the crossing there is a natural waterfall that obstructs connectivity within the stream as well. The scope of this work was to stabilize the bank and prevent further scour and sedimentation.

(g) Not cause erosion, aggradation, or scouring upstream or downstream of the crossing; and

The emergency repair was required to resolve the ongoing erosion into Davis Brook as a result of the slope failure. The repair work did not lead to further erosion, aggradation or scouring upstream or downstream of the project. Today the concrete wall continues to maintain the slope and prevent continued erosion from rain events.

(h) Not cause water quality degradation.

The emergency work was a repair to fix the water quality degradation resulting from the slope failure. The repair work continues to prevent further water quality degradation and sediment from entering Davis Brook.

*****Note: An alternative design for Tier 1 stream crossings must meet the general design criteria (Env-Wt 904.01) only to the *maximum extent practicable*.**

NEW HAMPSHIRE NATURAL HERITAGE BUREAU
NHB DATACHECK RESULTS LETTER

To: Arin Mills, NH Department of Transportation
John O. Morton Building
7 Hazen Drive
Concord, NH 03302-0483

From: NH Natural Heritage Bureau

Date: 5/14/2019 (valid for one year from this date)

Re: Review by NH Natural Heritage Bureau of request submitted 5/9/2019

NHB File ID: NHB19-1438 **Applicant:** Arin Mills

Location: Landaff
Bridge #137-031 over Davis Brook along Route 116.

Project Description: This is an 'after the fact' review for an emergency repair which resulted in bank destabilization on the adjacent slope on the outlet side of the bridge. The repair included the installation of a concrete wall and backfill with stone to repair and stabilize the slope adjacent to the bridge outlet.

The NH Natural Heritage database has been checked by staff of the NH Natural Heritage Bureau and/or the NH Nongame and Endangered Species Program for records of rare species and exemplary natural communities near the area mapped below. The species considered include those listed as Threatened or Endangered by either the state of New Hampshire or the federal government.

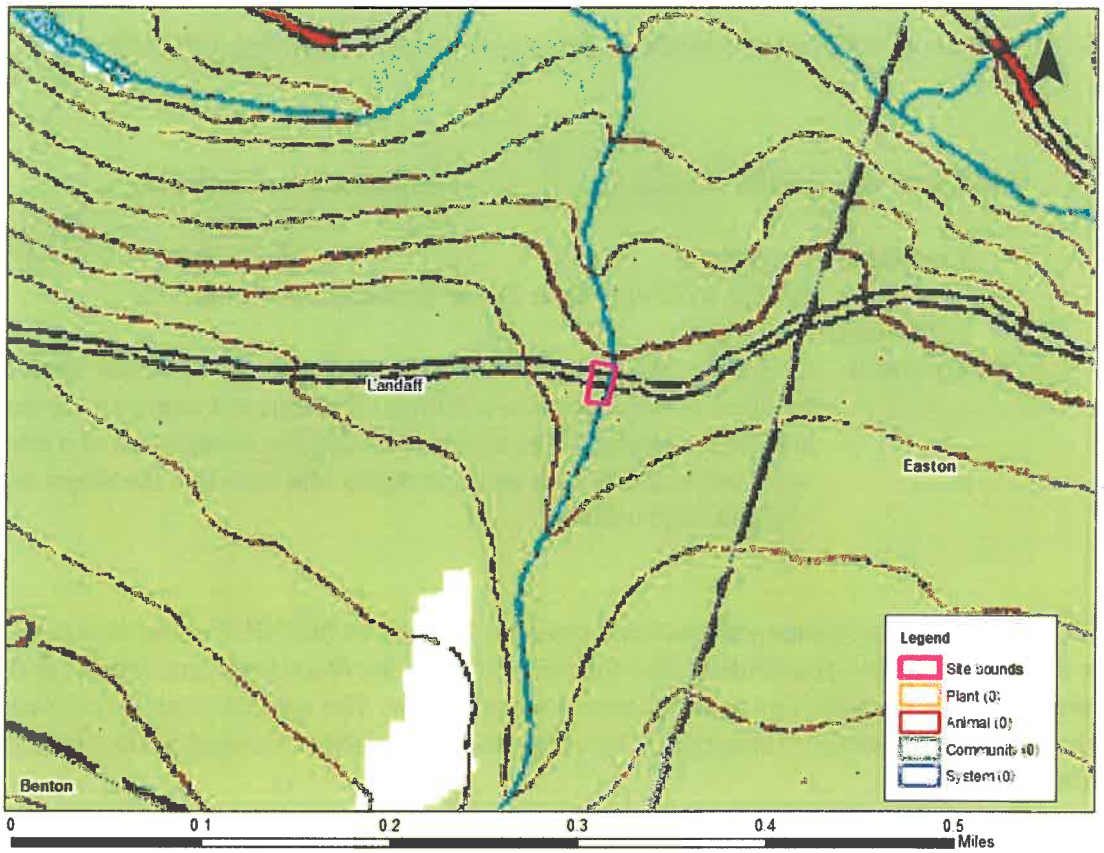
It was determined that, although there was a NHB record (e.g., rare wildlife, plant, and/or natural community) present in the vicinity, we do not expect that it will be impacted by the proposed project. This determination was made based on the project information submitted via the NHB Datacheck Tool on 5/9/2019, and cannot be used for any other project.

Department of Natural and Cultural Resources
Division of Forests and Lands
(603) 271-2214 fax: 271-6488

DNCR/NHB
172 Pembroke Rd.
Concord, NH 03301

MAP OF PROJECT BOUNDARIES FOR: **NHB19-1438**

NHB19-1438



Department of Natural and Cultural Resources
Division of Forests and Lands
(603) 271-2214 fax: 271-6488

DNCR/NHB
172 Pembroke Rd.
Concord, NH 03301

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104
http://www.fws.gov/newengland

In Reply Refer To:
Consultation Code: 05E1NE00-2019-SLI-1690
Event Code: 05E1NE00-2019-E-04105
Project Name: Landaff 137/031

May 13, 2019

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
(603) 223-2541

Project Summary

Consultation Code: 05E1NE00-2019-SLI-1690

Event Code: 05E1NE00-2019-E-04105

Project Name: Landaff 137/031

Project Type: BRIDGE CONSTRUCTION / MAINTENANCE

Project Description: Emergency repair to outlet slope from major rain event in summer 2017 to bridge 137031 which carries NH Route 116 over Davis Brook. Repair includes installation of concrete wall with stone fill to repair eroded bank.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/44.097843862848215N71.85732666869632W

Counties: Grafton, NH

Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
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Phone: (603) 223-2541 Fax: (603) 223-0104
http://www.fws.gov/newengland

In Reply Refer To:
Consultation Code: 05E1NE00-2019-TA-1690
Event Code: 05E1NE00-2019-E-04319
Project Name: Landaff 137/031

May 22, 2019

Subject: Verification letter for the 'Landaff 137/031' project under the January 5, 2016, Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-eared Bat and Activities Excepted from Take Prohibitions.

Dear Arin Mills:

The U.S. Fish and Wildlife Service (Service) received on May 22, 2019 your effects determination for the 'Landaff 137/031' (the Action) using the northern long-eared bat (*Myotis septentrionalis*) key within the Information for Planning and Consultation (IPaC) system. This IPaC key assists users in determining whether a Federal action is consistent with the activities analyzed in the Service's January 5, 2016, Programmatic Biological Opinion (PBO). The PBO addresses activities excepted from "take"[1] prohibitions applicable to the northern long-eared bat under the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.).

Based upon your IPaC submission, the Action is consistent with activities analyzed in the PBO. The Action may affect the northern long-eared bat; however, any take that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o). Unless the Service advises you within 30 days of the date of this letter that your IPaC-assisted determination was incorrect, this letter verifies that the PBO satisfies and concludes your responsibilities for this Action under ESA Section 7(a)(2) with respect to the northern long-eared bat.

Please report to our office any changes to the information about the Action that you submitted in IPaC, the results of any bat surveys conducted in the Action area, and any dead, injured, or sick northern long-eared bats that are found during Action implementation. If the Action is not completed within one year of the date of this letter, you must update and resubmit the information required in the IPaC key.

This key is intended for actions that may affect the threatened northern long-eared bat.

The purpose of the key for Federal actions is to assist determinations as to whether proposed actions are consistent with those analyzed in the Service's PBO dated January 5, 2016.

Federal actions that may cause prohibited take of northern long-eared bats, affect ESA-listed species other than the northern long-eared bat, or affect any designated critical habitat, require ESA Section 7(a)(2) consultation in addition to the use of this key. Federal actions that may affect species proposed for listing or critical habitat proposed for designation may require a conference under ESA Section 7(a)(4).

Determination Key Result

This project may affect the threatened Northern long-eared bat; therefore, consultation with the Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.) is required. However, based on the information you provided, this project may rely on the Service's January 5, 2016, *Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-Eared Bat and Activities Excepted from Take Prohibitions* to fulfill its Section 7(a)(2) consultation obligation.

Qualification Interview

1. Is the action authorized, funded, or being carried out by a Federal agency?

   Yes

2. Have you determined that the proposed action will have "no effect" on the northern long-eared bat? (If you are unsure select "No")

   No

3. Will your activity purposefully **Take** northern long-eared bats?

   No

4. Is the project action area located wholly outside the White-nose Syndrome Zone?

   Automatically answered

   No

5. Have you contacted the appropriate agency to determine if your project is near a known hibernaculum or maternity roost tree?

   Location information for northern long-eared bat hibernacula is generally kept in state Natural Heritage Inventory databases – the availability of this data varies state-by-state. Many states provide online access to their data, either directly by providing maps or by providing the opportunity to make a data request. In some cases, to protect those resources, access to the information may be limited. A web page with links to state Natural Heritage Inventory databases is available at www.fws.gov/midwest/endangered/mammals/nleb/nhisites.html.

   Yes

6. Will the action affect a cave or mine where northern long-eared bats are known to hibernate (i.e., hibernaculum) or could it alter the entrance or the environment (physical or other alteration) of a hibernaculum?

   No

7. Will the action involve Tree Removal?

   Yes

8. Will the action only remove hazardous trees for the protection of human life or property?

   No

9. Will the action remove trees within 0.25 miles of a known northern long-eared bat hibernaculum at any time of year?

   No

10. Will the action remove a known occupied northern long-eared bat maternity roost tree or any trees within 150 feet of a known occupied maternity roost tree from June 1 through July 31?

    No

Project Questionnaire

If the project includes forest conversion, report the appropriate acreages below. Otherwise, type '0' in questions 1-3.

1. Estimated total acres of forest conversion:
0.01

2. If known, estimated acres of forest conversion from April 1 to October 31
0.01

3. If known, estimated acres of forest conversion from June 1 to July 31
0.01

If the project includes timber harvest, report the appropriate acreages below. Otherwise, type '0' in questions 4-6.

4. Estimated total acres of timber harvest
0

5. If known, estimated acres of timber harvest from April 1 to October 31
0

6. If known, estimated acres of timber harvest from June 1 to July 31
0

If the project includes prescribed fire, report the appropriate acreages below. Otherwise, type '0' in questions 7-9.

7. Estimated total acres of prescribed fire
0

8. If known, estimated acres of prescribed fire from April 1 to October 31
0

9. If known, estimated acres of prescribed fire from June 1 to July 31
0

If the project includes new wind turbines, report the megawatts of wind capacity below. Otherwise, type '0' in question 10.

10. What is the estimated wind capacity (in megawatts) of the new turbine(s)?

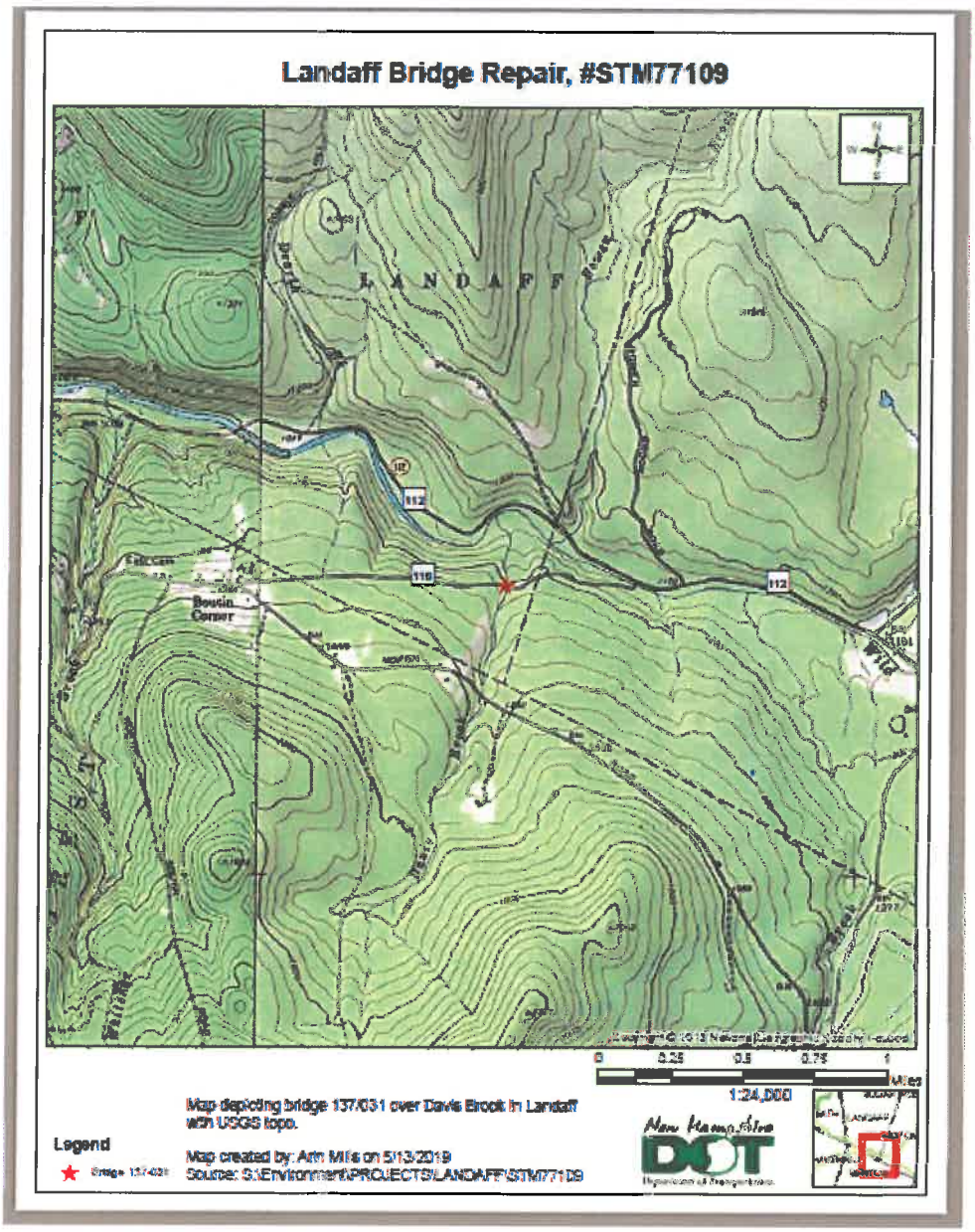
0

Project____Landaff STM77109

NHDOT Cultural Resources Review

For the purpose of compliance with regulations of the National Historic Preservation Act, the Advisory Council on Historic Preservation's *Procedures for the Protection of Historic Properties* (36 CFR 800), the US Army Corps of Engineers' *Appendix C*, and/or state regulation RSA 227-C:9, *Directive for Cooperation in the Protection of Historic Resources*, the NHDOT Cultural Resources Program has reviewed the proposed project for potential impacts to historic properties.

PROJECT PROPOSAL: This review is associated with an after-the-fact wetland application for completed repairs to a metal pipe bridge (137/031) which carries Route 116 over Davis Brook in Landaff. The metal pipe bridge was constructed in 1961, rebuilt in 2011, and the most recent repairs were undertaken in 2017. A follow-up wetland permit is being submitted, as required for FEMA funding reimbursement. Repairs were undertaken due to bank destabilization on the outlet (west) side of the bridge from a July 2017 storm event. Repairs included installing a concrete wall with stone fill on the outlet (west) side of the bridge to prevent further erosion.




Landaff Bridge Repair, #STM77109
137/031
118
Legend
Bridge 137/031
Stream Centerlines
Type
Perennial Stream
Intermittent Stream
Map depicting bridge 137/031 over Davis Brook in Landaff with 2017 Imagery.
Map created by: Arin Mills on 5/13/2019
Source: S:\Environment\PROJECTS\LANDAFF\STM77109
0 100 200 400
Feet
1:2,400
New Hampshire
DOT

Photo 5: Looking south at slope failure, July 2017

Photo 8: Looking southwest at repair wall, August 2017

Site Visit Photos from April 10, 2019 Site Visit. Project #STM77109

Photo 1: Looking south at stream outlet with repaired headwall

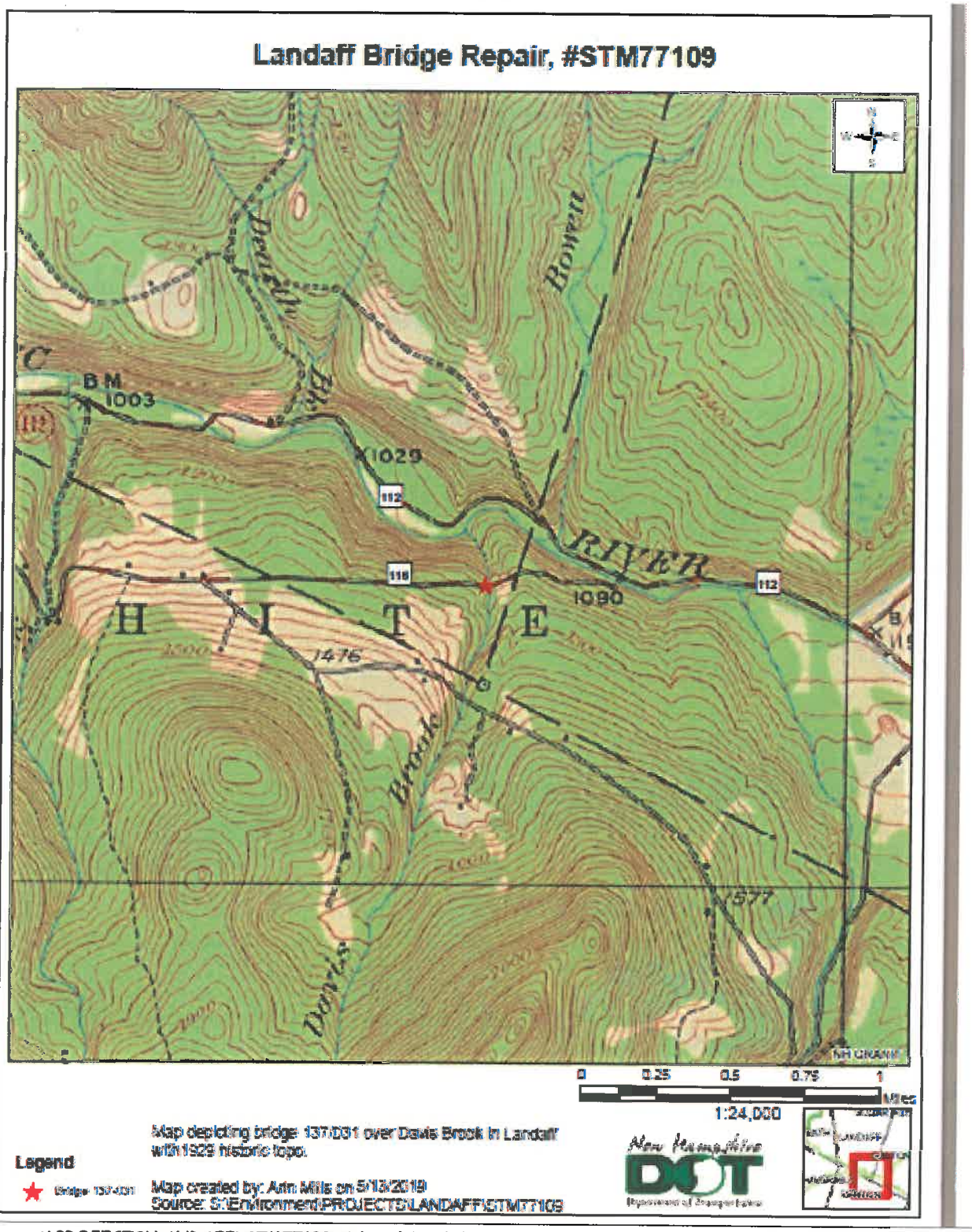
Ph

Above Ground Review
Known/approximate age of structures: The metal pipe bridge was constructed in 1961, with repairs in 2011 and 2017.
☒ **No Potential to Cause Effect/No Concerns** EMMIT search (5/23/2019) did not disclose any Project Areas or Historic Properties in the APE. Furthermore, the project applies to the Program Comment for Common Post-1945 Concrete & Steel Bridges.
☐ Concerns:

Below Ground Review
Recorded Archaeological site: ☐Yes ☒No
Nearest Recorded Archaeological Site Name & Number: 27-GR-0205 Whitcher Mill Dam & Pond Site ☐Pre-Contact ☒Post-Contact 27-GR-206 Cottage, c.1910
Distance from Project Area: 1.456 miles (2.344 km) west of project area
☒ **No Potential to Cause Effect/No Concerns** ☐ Concerns EMMIT (and Terrain Navigator) research was undertaken and there are no historic or archaeological properties in the APE. Similarly historic cartographic review did not disclose any historic structures in the project area. Additionally, photographic review disclosed the steep terrain that has been impacted by the bridge and road construction.

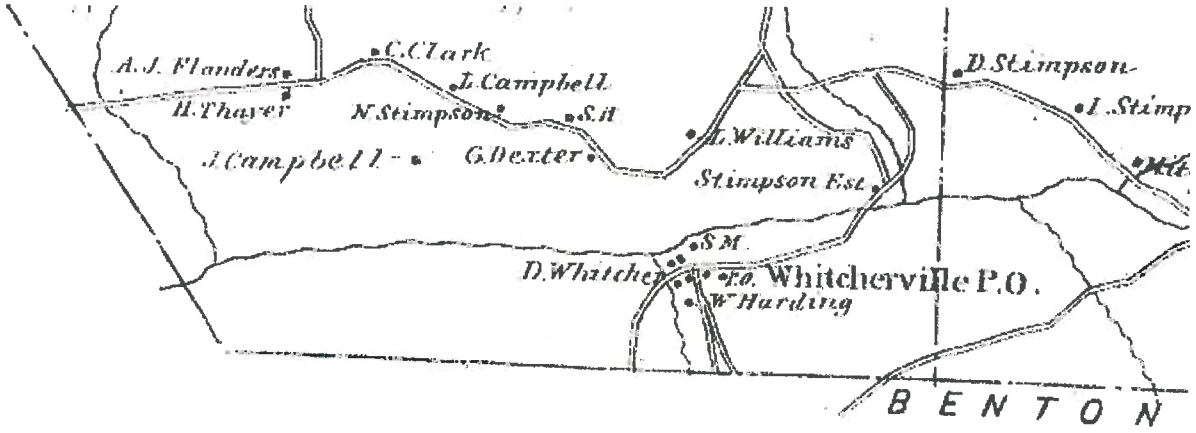
Cartographic research was also conducted. There are no historic structures depicted in or near the project area on the 1929 and the 1932 15' topographic quadrangles, although the NH Route 116 road alignment is portrayed.

1929 USGS 15' Topographic Quadrangle



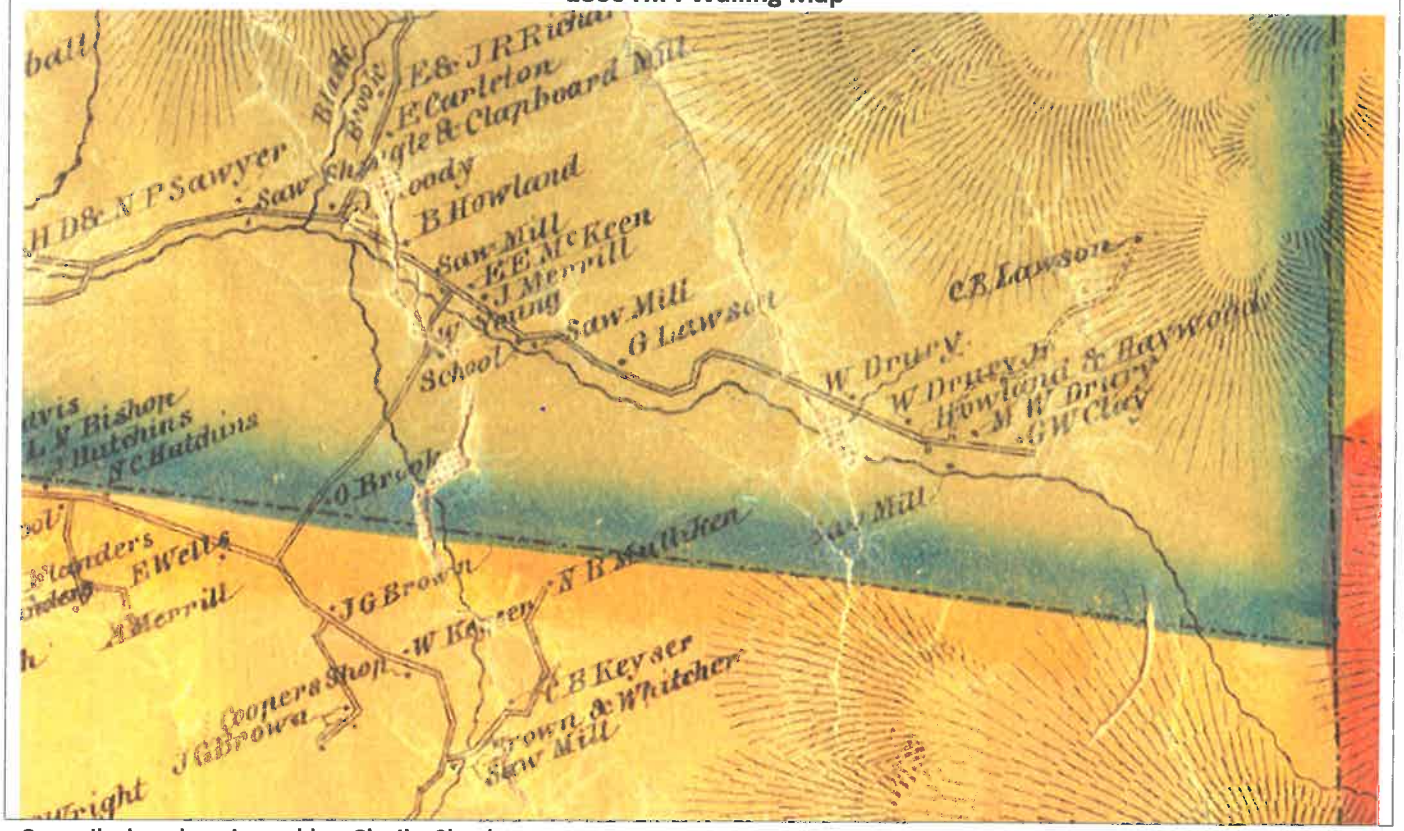
The 1892 Hurd map depicts a historic road alignment that is comparable to Route 116. No structures are depicted in this vicinity.

1892 Hurd Map



The 1860 map does not show that the Route 16 alignment or Route 112 extends to and beyond the town boundary with Easton. No structures or roads are depicted in the project area.

1860 H.P. Walling Map



Compiled and reviewed by: Sheila Charles

Sheila Charles

5/23/2019

NHDOT Cultural Resources Specialist/Archaeologist

Date:

New Hampshire Recordation of Bridges that Apply to the Program Comment for Common Post-1945 Concrete & Steel Bridges

Project Name:	Landaff		
State Number:	STM77109	**FHWA Number:**	none
Form Completed by: Email if not NHDOT staff:	Sheila Charles Sheila.Charles@dot.nh.gov	**Date:**	5/23/2019

Town	Landaff	**NHDOT Bridge No.**	137/031
Year Built (rebuilt)	1961/2011/2017	**Owner**	NHDOT
Road carrying	Route 116	**Over feature**	Davis Brook
Bridge/culvert Type	Metal pipe	**Number of Spans**	1
Length	11 ft	**Width**	31 ft
Abutment style	Stacked stone headwall	**Pier style**	n/a
Rail Type	W-Beam	**Rail installation date:**	Unknown
Designer/Engineer (if known)	Unknown	**Bridge Plaques or Engravings?**	None

Reviewed by: Sheila Charles — **Date Reviewed:** 5/23/2019

NHDOT Cultural Resources Staff

Approved ☒ **Not Approved** ☐ **Justification:**

RPR Number:_____ Reviewed under PA: _____

Created March 27, 2014 Updated September 15, 2014

Please refer to the *NHDOT Guidance on Using the Program Comment for Common Post-1945 Concrete and Steel Bridges*, located on the NHDOT Bureau of Environment Website, for information on using this form: http://www.nh.gov/dot/org/projectdevelopment/environment/units/program-management/cultural.htm

Information on specific bridges can be found on the NHDOT Bureau of Bridge Design **Bridge Summary** Spreadsheet: http://www.nh.gov/dot/org/projectdevelopment/bridgedesign/documents.htm.

(Additional photographs may be attached here if needed).

US Army Corps of Engineers®
New England District

New Hampshire General Permits (GPs)
Appendix B - Corps Secondary Impacts Checklist
(for inland wetland/waterway fill projects in New Hampshire)

1. Attach any explanations to this checklist. Lack of information could delay a Corps permit determination.
2. All references to "work" include all work associated with the project construction and operation. Work includes filling, clearing, flooding, draining, excavation, dozing, stumping, etc.
3. See GC 5, regarding single and complete projects.
4. Contact the Corps at (978) 318-8832 with any questions.

1. Impaired Waters	Yes	No
1.1 Will any work occur within 1 mile upstream in the watershed of an impaired water? See http://des.nh.gov/organization/divisions/water/wmb/section401/impaired_waters.htm to determine if there is an impaired water in the vicinity of your work area.*		X
2. Wetlands	Yes	No
2.1 Are there are streams, brooks, rivers, ponds, or lakes within 200 feet of any proposed work?	X	
2.2 Are there proposed impacts to SAS, special wetlands. Applicants may obtain information from the NH Department of Resources and Economic Development Natural Heritage Bureau (NHB) DataCheck Tool for information about resources located on the property at https://www2.des.state.nh.us/nhb_datacheck/. The book Natural Community Systems of New Hampshire also contains specific information about the natural communities found in NH.		X
2.3 If wetland crossings are proposed, are they adequately designed to maintain hydrology, sediment transport & wildlife passage?	X	
2.4 Would the project remove part or all of a riparian buffer? (Riparian buffers are lands adjacent to streams where vegetation is strongly influenced by the presence of water. They are often thin lines of vegetation containing native grasses, flowers, shrubs and/or trees that line the stream banks. They are also called vegetated buffer zones.)	X	
2.5 The overall project site is more than 40 acres?		X
2.6 What is the area of the previously filled wetlands?		
2.7 What is the area of the proposed fill in wetlands?		
2.8 What is the % of previously and proposed fill in wetlands to the overall project site?		
3. Wildlife	Yes	No
3.1 Has the NHB & USFWS determined that there are known occurrences of rare species, exemplary natural communities, Federal and State threatened and endangered species and habitat, in the vicinity of the proposed project? (All projects require an NHB ID number & a USFWS IPAC determination.) NHB DataCheck Tool: https://www2.des.state.nh.us/nhb_datacheck/ USFWS IPAC website: https://ecos.fws.gov/ipac/location/index		X

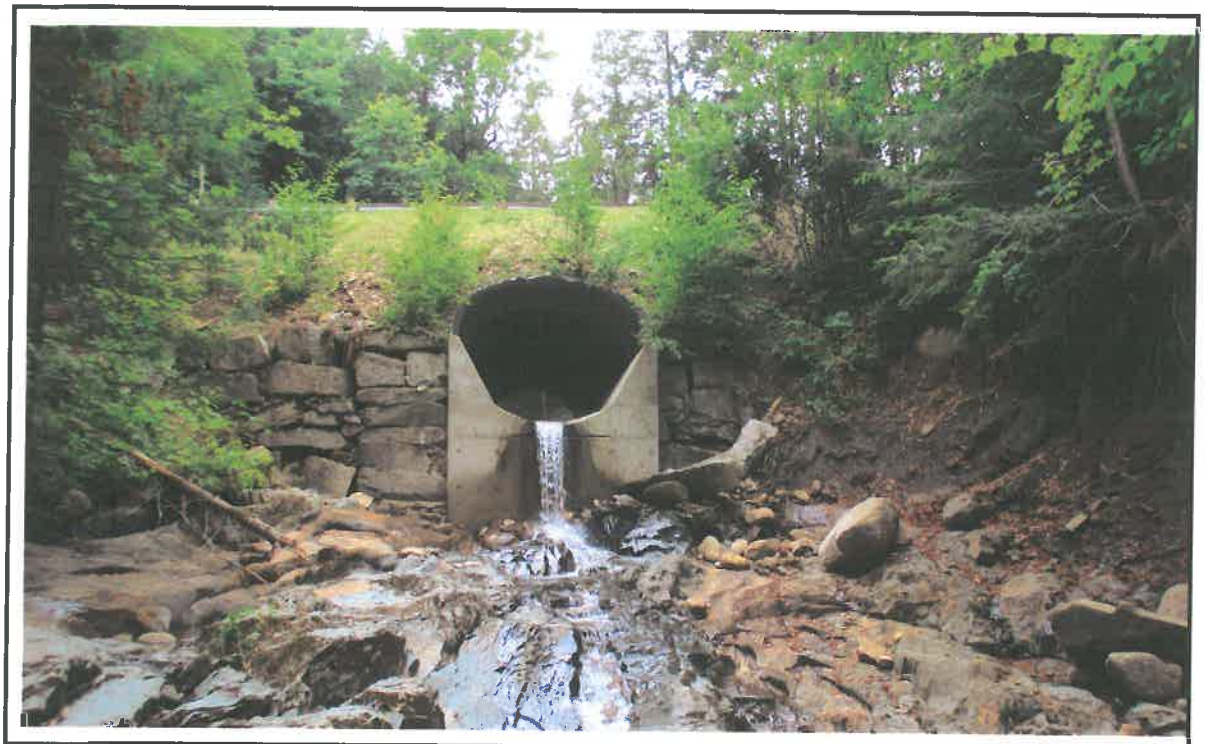
3.2 Would work occur in any area identified as either "Highest Ranked Habitat in N.H." or "Highest Ranked Habitat in Ecological Region"? (These areas are colored magenta and green, respectively, on NH Fish and Game's map, "2010 Highest Ranked Wildlife Habitat by Ecological Condition.") Map information can be found at: • PDF: www.wildlife.state.nh.us/Wildlife/Wildlife_Plan/highest_ranking_habitat.htm. • Data Mapper: www.granit.unh.edu. • GIS: www.granit.unh.edu/data/downloadfreedata/category/databycategory.html.		
3.3 Would the project impact more than 20 acres of an undeveloped land block (upland, wetland/waterway) on the entire project site and/or on an adjoining property(s)?		
3.4 Does the project propose more than a 10-lot residential subdivision, or a commercial or industrial development?		
3.5 Are stream crossings designed in accordance with the GC 21?	X	
4. Flooding/Floodplain Values	Yes	No
4.1 Is the proposed project within the 100-year floodplain of an adjacent river or stream?		X
4.2 If 4.1 is yes, will compensatory flood storage be provided if the project results in a loss of flood storage?		N/A
5. Historic/Archaeological Resources		
For a minimum, minor or major impact project - a copy of the Request for Project Review (RPR) Form (www.nh.gov/nhdhr/review) with your DES file number shall be sent to the NH Division of Historical Resources as required on Page 11 GC 8(d) of the GP document**	X	

*Although this checklist utilizes state information, its submittal to the Corps is a Federal requirement.
** If your project is not within Federal jurisdiction, coordination with NH DHR is not required under Federal law.

2.1: Work is to bridge which carries NH Route 116 over Davis Brook

2.4: Work included construction of a concrete wall backfilled with rip rap to repair eroding slope from storm event. Natural vegetation and soil was lost and to protect the existing bridge and roadway rip rap material was required to prevent further erosion.

3.1: NHB File #NHB19-1438 found no expected impacts. USFWS Species list (05E1NE00-2019-SLI-1690, May 13, 2019) found Norther long eared bat potential. Consistency Finding (05E1NE00-2019-TA-1690, May 22, 2019) found activities consistent with Programmatic Biological Opinion and activities are not prohibited under the 4(d) rule.



Looking Upstream at the outlet of Structure before the work was done / after July 2018 storm

Looking at the Northwest Bank after July 2018 storm, before the work was done

Work Completed, Bank Stabilization

Looking Downstream at the inlet through the Culvert

Upstream from the Inlet

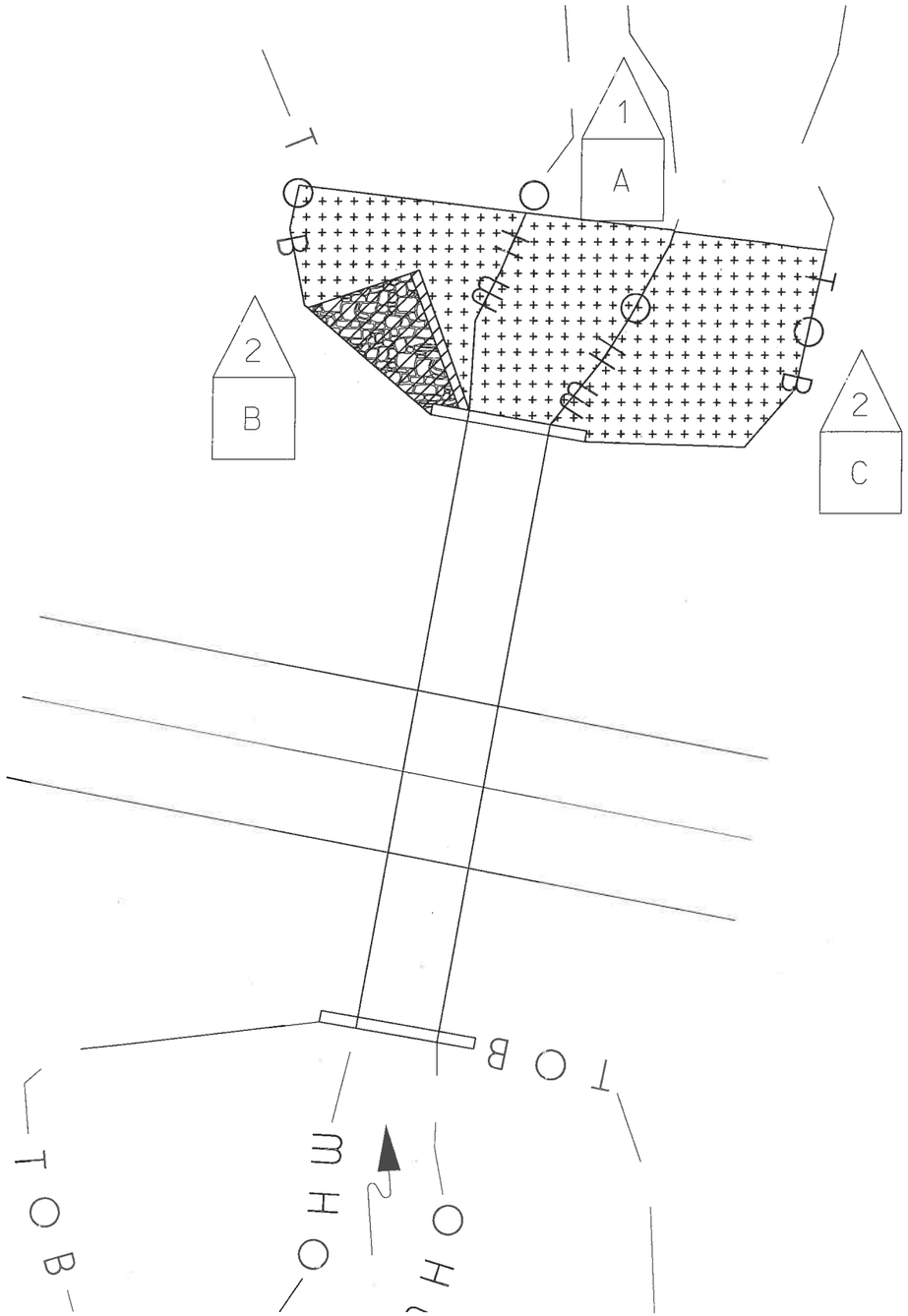
Downstream from the Outlet

CONSTRUCTION SEQUENCE

1. The existing NE masonry wall was pointed and the concrete wingwall was constructed out from the NW wingwall.

2. Riprap was placed behind the NW wingwalls to restore and stabilize the eroded bank.

Note: All work was done during low flow conditions. All work was performed on dry exposed ledge, and no water diversion was necessary.



WETLAND IMPACTS

SCALE: 1" = 20'-0

10 0 10 20

SCALE IN FEET

LEGEND

TYPE OF WETLAND IMPACT	SHADING/ HATCHING
NEW HAMPSHIRE WETLANDS BUREAU (PERMANENT NON-WETLAND)	
NEW HAMPSHIRE WETLANDS BUREAU & ARMY CORP OF ENGINEERS (PERMANENT WETLAND)	
TEMPORARY IMPACTS	

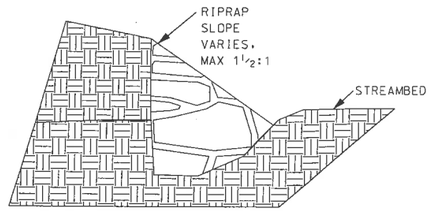
WETLAND DESIGNATION NUMBER

WETLAND IMPACT LOCATION

WETLAND MITIGATION AREA

MITIGATION

STATE OF NEW HAMPSHIRE
TIMOTHY MAIN BOODEY
No. 12139
LICENSED
PROFESSIONAL ENGINEER



SECTION A-A

NOT TO SCALE

WETLANDS DELINEATED BY SARAH LARGE ON 4/12/19

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE MAINTENANCE

TOWN LANDAFF BRIDGE NO. 137/031 STATE PROJECT STM77109

LOCATION NH 116 OVER DAVIS BROOK

WETLAND IMPACTS

BRIDGE SHEET: 1 OF 3

REVISIONS AFTER PROPOSAL	BY	DATE

	BY	DATE
DESIGNED	SWJ	7/15/17
DRAWN	DBL	5/9/19
QUANTITIES		
ISSUE DATE		
REV. DATE		
CHECKED		
CHECKED		
CHECKED		

FILE NUMBER: LANDAFF 137/031

SHEET SCALE: AS NOTED

FISCAL YEAR	CREW	SHEET NO.	TOTAL SHEETS
2017	10	1	3

Landaff 137/031

WETLAND IMPACT SUMMARY												
WETLAND NUMBER	WETLAND CLASSIFICATION	LOCATION	AREA IMPACTS						LINEAR STREAM IMPACTS FOR MITIGATION		
			PERMANENT				TEMPORARY		PERMANENT		
			N.H.W.B. (NON WETLAND)		N.H.W.B. & A.C.O.E. (WETLAND)				BANK LEFT	BANK RIGHT	CHANNEL
			SF	LF	SF	LF	SF	LF	LF	LF	LF
1	R2UB12	A					488	29			
2	BANK	B	196	36			411	28			
2	BANK	C					686	31			
	TOTAL		196	36	0	0	1585	88	0	0	0

PERMANENT IMPACTS: 196 SF
TEMPORARY IMPACTS: 1585 SF
TOTAL IMPACTS: 1781 SF

SUBTOTALS		PERMANENT				TEMPORARY	
		N.H.W.B. (NON WETLAND)		N.H.W.B. & A.C.O.E. (WETLAND)			
CLASS	DESCRIPTION	SF	LF	SF	LF	SF	LF
R2UB12	RIVERINE	0	0	0	0	488	29
BANK	BANK	196	36	0	0	1097	59

WETLAND CLASSIFICATION CODES	
R2UB12	RIVERINE, LOWER PERENNIAL, UNCONSOLIDATED BOTTOM, COBBLE GRAVEL
BANK	

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE MAINTENANCE

TOWN LANDAFF BRIDGE NO. 137/031 STATE PROJECT STM77109
LOCATION NH 116 OVER DAVIS BROOK

WETLAND IMPACTS

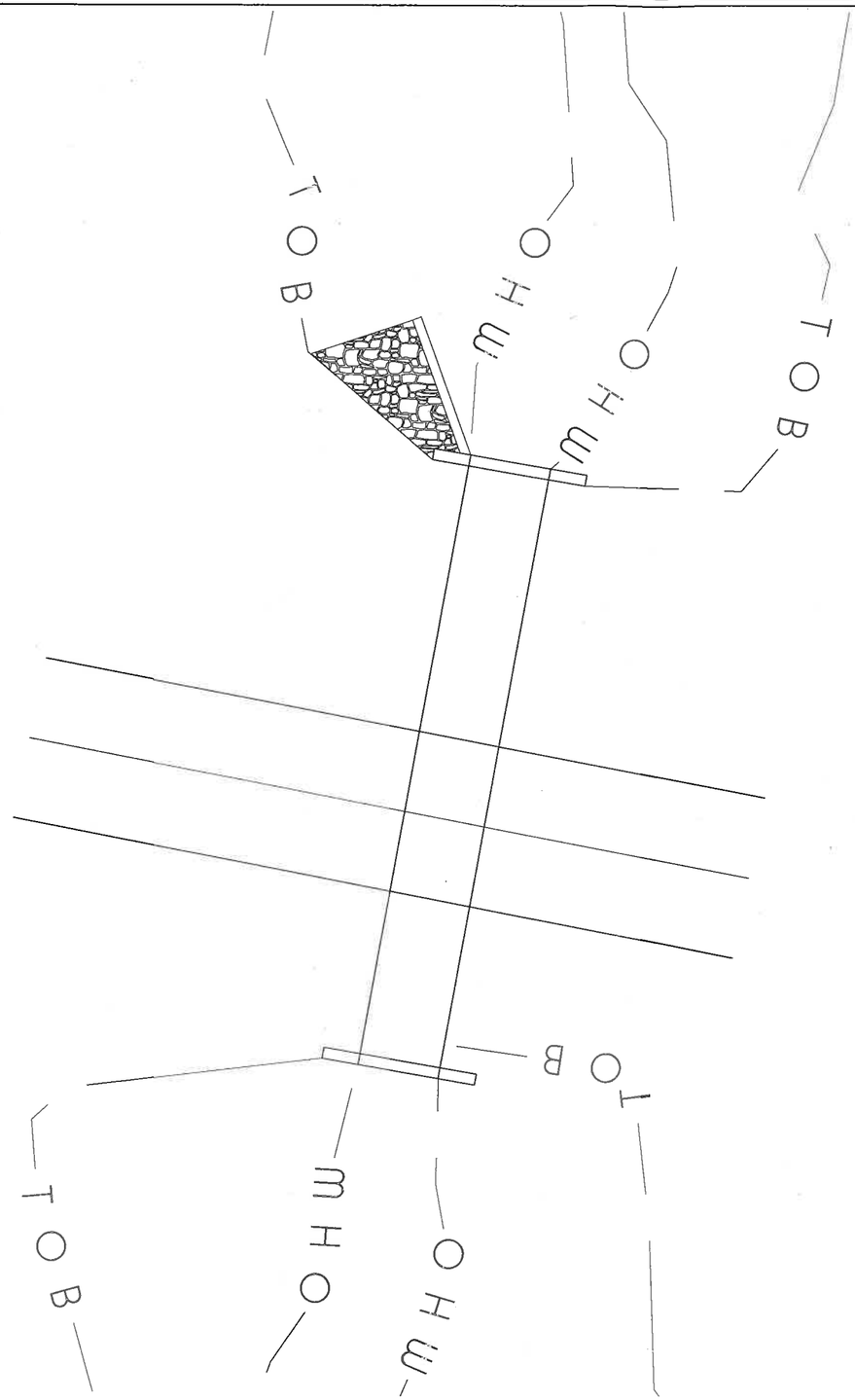
BRIDGE SHEET 2 OF 3

REVISIONS AFTER PROPOSAL	BY	DATE		BY	DATE
	DESIGNED SWJ	7/14/17	CHECKED		
	DRAWN DBL	5/9/19	CHECKED		
	QUANTITIES		CHECKED		
	ISSUE DATE		FISCAL YEAR 2017	CREW 10	SHEET NO. 2
	REV. DATE				

SHEET SCALE AS NOTED

FILE NUMBER LANDAFF 137/031

TOTAL SHEETS 3



EROSION CONTROL PLANS

SCALE: 1" = 20'-0

EROSION CONTROL PLAN LEGEND

PC — PERIMETER CONTROL
- SILT FENCE
- EROSION CONTROL MIX BERM
- EROSION CONTROL MIX SOX
- TURBIDITY CURTAIN
- SHEET PILE
- COFFER DAM

NB/PC — NATURAL BUFFER/PERIMETER CONTROL
- SILT FENCE
- EROSION CONTROL MIX BERM
- EROSION CONTROL MIX SOX
- TURBIDITY CURTAIN
- SHEET PILE
- COFFER DAM

CP, CP, CP, CP — CHANNEL PROTECTION
- STONE CHECK DAMS
- STRAW WATTLES
- CHANNEL MATTING
- CLASS D EROSION STONE
- CLASS C STONE

CWB, CWB, CWB, CWB — CLEAN WATER BYPASS
- PUMP THROUGH PIPE
- DRAIN THROUGH PIPE OR CHANNEL

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE MAINTENANCE

TOWN LANDAFF — BRIDGE NO. 137/031 — STATE PROJECT STM77109

LOCATION NH 116 OVER DAVIS BROOK

WETLAND IMPACTS

BRIDGE SHEET 3 OF 3

REVISIONS AFTER PROPOSAL	BY	DATE		BY	DATE
	DESIGNED	SWJ	7/14/17	CHECKED	
	DRAWN	DBL	5/9/19	CHECKED	
	QUANTITIES			CHECKED	

FILE NUMBER LANDAFF 137/031

SHEET SCALE	ISSUE DATE	FISCAL YEAR	CREW	SHEET NO.	TOTAL SHEETS
	REV. DATE	2017	10	3	3